LESSON 4.2 Practice
For use with pages 215–222

Decide which of the two points lies on the graph of the line.

1. $2x + y = 10$

   a. $(4, 3)$ b. $(-4, 18)$

2. $x - 3y = 12$

   a. $(9, 1)$ b. $(6, -2)$

3. $2y - x = 9$

   a. $(5, 1)$ b. $(1, 5)$

Solve the equation for y.

4. $-6x + y = 11$

5. $8x + 2y = 10$

   $-8x -8x$

   $\dfrac{2y}{2} = \dfrac{-8x}{2} + \dfrac{10}{2}$ $m = -4$

   $\boxed{y = -4x + 5}$ y-int: $(0, 5)$

6. $6x - 3y = -9$

7. $-4x + 2y = 16$

8. $10x - 5y = 25$

9. $3x + 2y = -8$

   $-3x -3x$

   $\dfrac{2y}{2} = \dfrac{-3x}{2} - \dfrac{8}{2}$
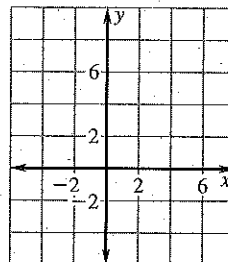
   $\boxed{y = -\dfrac{3}{2}x - 4}$

   $m = -\dfrac{3}{2}$ y-int: $(0, -4)$
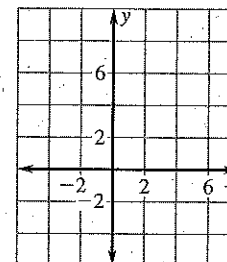
Graph the equation.

10. $y + x = 14$
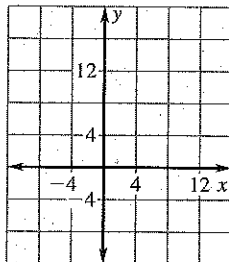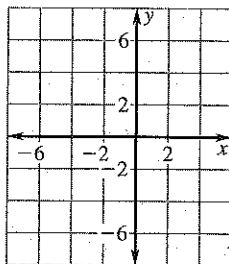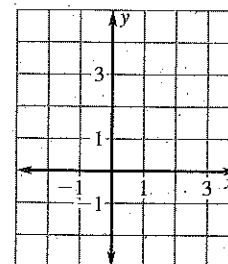

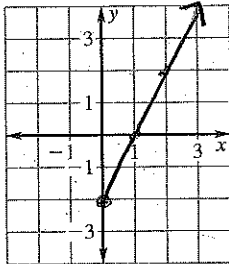11. $y - 5x = 2$

12. $2y - 4x = 10$

13. $x = -6$

14. $y = 4$

15. $3x - 2y = 0$
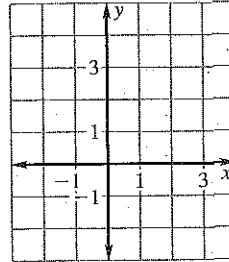
Name _____ Date _____

Graph the function with the given domain. Then identify the range of the function.

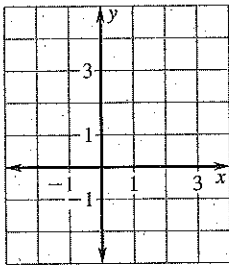**16.** $y = 2x - 2$; domain: $x \geq 0$

range: $y \geq -2$

17. $y = -3x + 1$; domain: $x \leq 0$

18. $y = 3$; domain: $x \leq 2$

19. $y = -1$; domain: $x \geq -1$
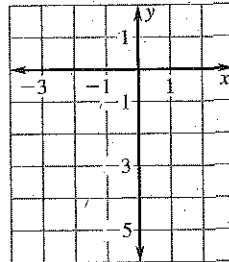
Identify the range of the function with the given domain.

20. $x + 3y = -8$; domain $x > 0$

21. $6x - 3y = 9$; domain: $x < 1$

22. Bicycle Rental A bicycle rental shop rents bicycles for $8 per hour. The total cost c (in dollars) for renting a bicycle h hours is given by the function $c = 8h$. Once you get to the rental shop, you figure you can rent a bicycle for at most 5 hours. Graph the function and identify its domain and range. What is the most that you will pay for renting the bicycle?

Bicycle Rental

Name _____   Date _____

Find the x-intercept and the y-intercept of the graph of the equation.

1. $x + y = 1$

2. $x - y = -5$

3. $6x - 3y = -3$

4. $5x + 10y = 30$

5. $9y - 5x = 20$

6. $8x - 2y = 16$

x-intercept
$y = 0$
$8x = 2(0) = 16$
$\frac{8x}{8} = \frac{16}{8}$
$x = 2$
$(2, 0)$

y-intercept
$x = 0$
$8(0) - 2y = 16$
$\frac{-2y}{-2} = \frac{16}{-2}$
$y = -8$
$(0, -8)$

7. $7x + 8y = 18$

8. $2y - 12x = -6$

9. $2x - 0.5y = 8$

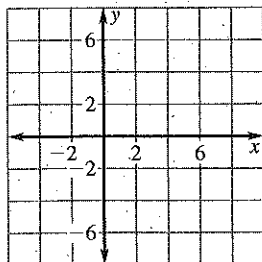x-intercept
$y = 0$
$2x - 0.5(0) = 8$
$\frac{2x}{2} = \frac{8}{2}$
$x = 4$
$(4, 0)$

y-intercept
$x = 0$
$2(0) = 0.5y = 8$
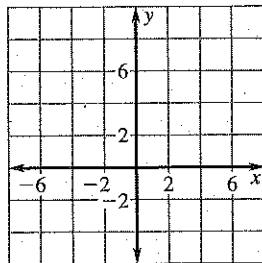$\frac{-.5y}{-.5} = \frac{8}{-.5}$
$y = -16$
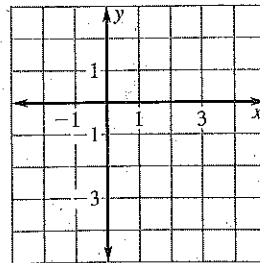$(0, -16)$

Draw the line that has the given intercepts.

10. x-intercept: 5
y-intercept: 4

11. x-intercept: −1
y-intercept: 6

12. x-intercept: 2
y-intercept: −3

LESSON 4.4 **Practice** *continued*
For use with pages 234–242

Find the slope of the line that passes through the points.

10.

$m = \dfrac{2}{3}$

11.

$m = \dfrac{-4}{5}$

12.

$m = 0$

13.

14.

15.
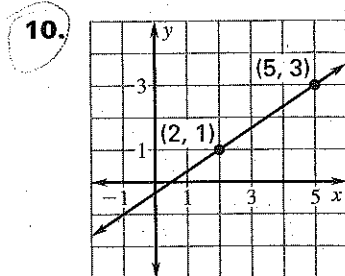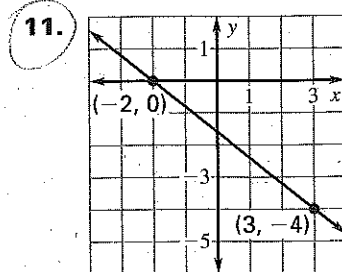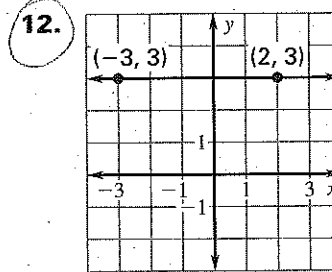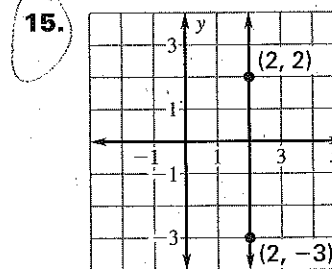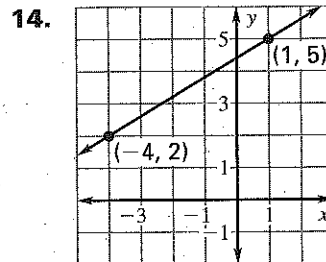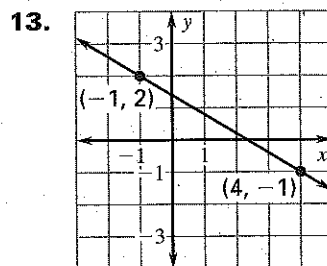
$m = \text{undefined}$

Find the slope of the line that passes through the points.

16. $(1, 2)$ and $(7, 7)$

$m = \dfrac{\Delta y}{\Delta x} = \dfrac{7-2}{7-1} = \dfrac{5}{6}$

$m = \dfrac{5}{6}$

17. $(3, 4)$ and $(-5, 0)$

18. $(5, -2)$ and $(5, 8)$

19. $(3, 1)$ and $(-5, 3)$

20. $(-7, 1)$ and $(1, 5)$

21. $(2, -5)$ and $(5, -2)$

22. $(3, 0)$ and $(8, 0)$

23. $(-6, -6)$ and $(-2, -2)$

24. $(-5, -4)$ and $(1, -2)$

$m = \dfrac{\Delta y}{\Delta x} = \dfrac{-2+(+4)}{1+(-5)} = \dfrac{2}{6}$

$m = \dfrac{1}{3}$

LESSON 4.4

Practice *continued*
For use with pages 234–242

Find the value of *x* or *y* so that the line passing through the two points has the given slope.

25. $(-3, y), (-9, -2); m = 1$ **26.** $(-1, 4), (x, 3); m = \frac{1}{5}$ **27.** $(8, 1), (1, y); m = -1$

$$\frac{y - (-2)}{-3 - (-9)} = 1 \qquad \frac{y + 2}{6} = \frac{1}{1}$$

$$\frac{y + 2}{-3 + 9} = 1 \qquad \begin{array}{r} y + 2 = 6 \\ -2 \quad -2 \end{array}$$

$$\boxed{y = 4}$$

28. $(x, -7), (1, 2); m = 3$ **29.** $(9, y), (3, 2); m = \frac{2}{3}$ **30.** $(7, 5), (x, 2); m = \frac{3}{4}$

$\boxed{y = 6}$

$\dfrac{y - 2}{9 - 3} = \dfrac{2}{3}$ $12 = 3(y - 2)$

$\dfrac{y - 2}{6} = \dfrac{2}{3}$ $\begin{array}{r}12 = 3y - 6 \\ +6 \quad +6\end{array}$

$\dfrac{18}{3} = \dfrac{3y}{3}$

$\dfrac{2 - 5}{x - 7} = \dfrac{3}{4}$ $3(x-7) = -12$

$\dfrac{-3}{x - 7} = \dfrac{3}{4}$ $3x - 21 = -12$

$3(x-7) = -12$ $\begin{array}{r}+21 \quad +21\end{array}$

$\dfrac{3x}{3} = \dfrac{9}{3}$

$\boxed{x = 3}$

31. Trolley Bus The table shows the number of trolley buses in operation in the United States during certain years.

Year	1980	1985	1990	1995	2000
Number of buses	823	676	832	885	951

  a. *Describe* the rates of change in the number of buses during the time period.

  b. Determine the time intervals during which the number of trolley buses showed the greatest and least rates of change.

32. Postage Rate The graph shows the cost (in dollars) to mail a letter that weighs one ounce during certain years.
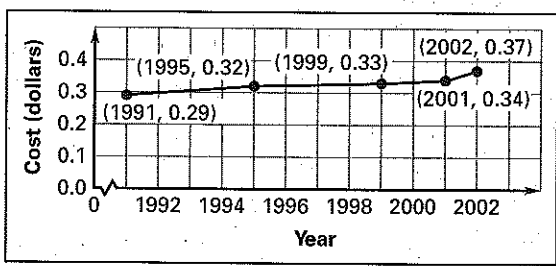
  a. Determine the time interval during which the cost to mail a one-ounce letter showed the greatest rate of change.

  b. Determine the time interval during which the cost to mail a one-ounce letter showed the least rate of change.

33. Heart Rate The graph shows the heart rate of a person during 30 minutes of exercise. Give a verbal description of the workout.

Algebra 1
Chapter 4 Practice Workbook. **57**

Practice *continued*
For use with pages 253–259
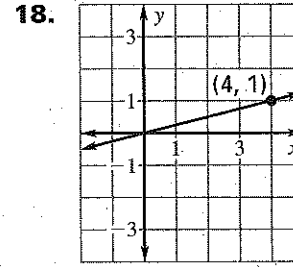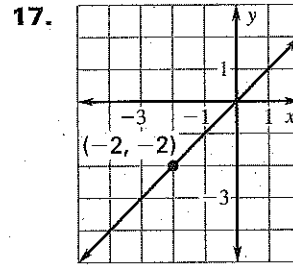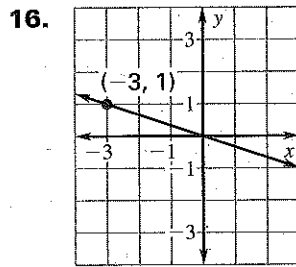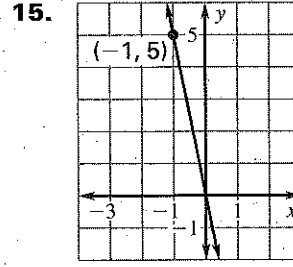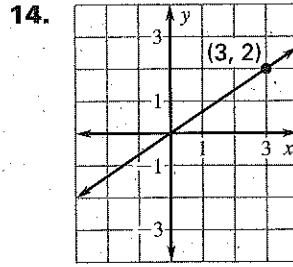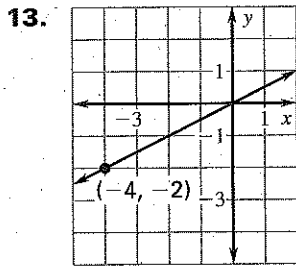
13.

14.

15.

16.

17.

18.

Tell whether the table represents direct variation. If so, write the direct variation equation.

19.

x	0.5	3	−2	1	−8
y	9	54	−36	18	−144

$\frac{9}{.5} = 18 = \frac{54}{3} = \frac{-36}{-2} = \frac{18}{1} = \frac{-144}{-8} = \boxed{18}$

$\boxed{y = 18x}$ $a = 18$

20.

x	−5	3	−2	10	20
y	−2	1.2	−0.8	4	8

21.

x	8	2	−4	−0.5	14
y	7	28	7	−112	4

$\frac{7}{8} \quad \frac{28}{2} = \frac{14}{1}$

not a direct variation.

22.

x	−0.2	−2	1	12	18
y	30	3	−6	−0.5	3

Given that y varies directly with x, use the specified values to write a direct variation equation that relates x and y.

23. $x = 24, y = 3$

$\frac{y}{x} = \frac{3}{24} = \frac{1}{8}$

$\boxed{y = \frac{1}{8}x}$ $a = \frac{1}{8}$

24. $x = -16, y = -4$

$\frac{y}{x} = \frac{-4}{-16} = \frac{1}{4}$

$\boxed{y = \frac{1}{4}x}$ $a = \frac{1}{4}$

25. $x = 28, y = -4$

LESSON 4.6 **Practice** *continued*
For use with pages 253–259

26. $x = 5, y = -30$

27. $x = \frac{1}{6}, y = 1$

28. $x = 8, y = -3$

29. $x = 6, y = 102$

30. $x = -8, y = 64$

31. $x = 15, y = 9$

32. Hooke's Law The force F required to stretch a spring varies directly with the amount the spring is stretched s. Eight pounds is needed to stretch a spring 8 inches.

a. Write a direct variation equation that relates F and s.

b. How much force is required to stretch a spring 25 inches?

33. Basement Waterproofing One way to keep moisture out of your basement is to paint the walls with a waterproof paint. The number g (of gallons) of paint you need varies directly with the area A of the basement. One gallon of paint covers 100 square feet.

a. Write a direct variation equation that relates g and A.

$$g = 100A \quad g = \frac{A}{100} \text{ or } g = \frac{1}{100}A \quad \left(a = \frac{1}{100}\right)$$

b. How many gallons do you need to cover 530 square feet?

$$g = \frac{530}{100} = 5.3 \text{ gallons} \quad \therefore \boxed{6 \text{ gallons}} \text{ or } \boxed{5.5 \text{ gallons}}$$

c. How many square feet does 8.5 gallons of paint cover?

$$100 \times 8.5 = \frac{A}{100} \times 100 \quad \boxed{A = 850 \text{ sq ft}}$$

34. Downloading Files The table shows the amount of time t (in seconds) it takes to download a file of size s (in kilobytes).

Time, t (sec)	File size, s (kb)	
15	420	$\frac{420}{15} = 28$
30	840	$\frac{840}{30} = 28$
45	1260	$\frac{1260}{45} = 28$

a. *Explain* why s varies directly with t. The rate of change is 28 $\frac{kb}{sec}$ for each and if graphed would go through (0,0)

b. Write a direct variation equation that relates s and t.

$$\boxed{S = 28t} \quad \left(a = 28\right)$$

c. How long will it take to download an 800-kilobyte file? Round your answer to the nearest second.

$$\frac{800}{28} = \frac{28t}{28}$$

$$t = 28.5714$$

$$\boxed{t = 29 \text{ seconds}}$$